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RESEARCH BRIEF

Mapping Opportunity

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Executive Summary

By 2031, nearly three quarters of jobs in the United States will require education or training beyond high school. Yet millions of adults—nearly 25 million without a high school diploma and another 74 million without postsecondary training—remain disconnected from these opportunities. This mismatch between workforce demands and educational attainment presents a dual challenge: Employers struggle to find qualified talent and many adults are locked out of family-sustaining careers.

In 2023, the American Institutes for Research® (AIR®) began partnering with the Illinois Community College Board (ICCB) to explore how adults with skill needs in Illinois are building their skills and preparing for upward economic mobility. Adult education providers in Illinois implement Integrated Education and Training (IET) through Integrated Career and Academic Preparation System (ICAPS) programs, which accelerate adults' progress in a career pathway and help them earn industry-recognized credentials. Similar to postsecondary education, ICAPS programs have prerequisite criteria requiring learners to demonstrate a certain skill level in literacy, numeracy, or English proficiency to enroll.

To better equip adults for ICAPS and postsecondary enrollment, adult education providers implement bridge courses, which provide literacy, numeracy, or English language instruction contextualized in one of 16 nationally recognized career clusters (e.g., Manufacturing, Information Technology, Health Science; Nicholson-Tosh & Bragg, 2013). A bridge course can serve as an on-ramp to better educational and employment opportunities—an important step toward closing skill gaps and strengthening the workforce.

This brief provides insights into the geographic locations of bridge courses and students across Illinois during program year (PY) 2022–23. By offering ZIP Code–level insights into where bridge courses are offered, where learners reside, and how far they travel to participate, this brief equips ICCB leadership, local providers, and state policymakers with practical, data-informed guidance. These insights can inform decisions about where to expand programming and support strategies that will make bridge programs more responsive to learners across Illinois, regardless of their location.

By mapping student and course locations and deriving distance-based measures of proximity, this analysis aims to inform ICCB leadership, local providers, and state policymakers about where to expand bridge programming, how to reduce geographic barriers to access, and what types of support may be needed to ensure learners can benefit from these opportunities, regardless of where they live. By highlighting patterns in course availability and student travel, this brief offers a new lens for understanding how geography shapes adult learners' educational journeys.

Where Were Bridge Courses Offered?

In PY 2022–23, 67 adult education providers offered in-person bridge courses at 125 unique locations. Bridge course offerings in Illinois were heavily concentrated in urban areas, particularly around Chicago, which accounted for nearly half of all bridge course locations. Community colleges—the largest group of adult education providers—offered courses across the state, but community- and faith-based organizations were primarily located in the Chicago metropolitan statistical area (MSA).

Overall, students living in and around Chicago could choose from bridge courses across multiple career clusters. However, students living in southern Illinois could not readily access bridge courses in certain career clusters, such as Information Technology and Business Management and Administration.

Bridge courses in Illinois are aligned with nationally recognized career clusters. The top three career clusters by number of bridge course locations were Health Science (52 locations), Education and Training (29 locations), and Manufacturing (29 locations). Bridge courses in certain other career clusters—including Information Technology, Business Management and Administration, Hospitality and Tourism, and Transportation, Distribution, and Logistics—were relatively limited outside of the Chicago area.

Each bridge course in PY 2022–23 was classified as either a bridge to an industry pathway or a more general career awareness bridge course. For the vast majority of career clusters, bridge course locations were much more likely to offer career awareness bridge courses than industry pathway bridge courses.

Who Were the Bridge Students and Where Did They Live?

In PY 2022–23, a total of 3,169 students enrolled in bridge courses, with 2,909 students (92%) attending bridge courses in person. Nearly half of the 2,909 in-person bridge students were 25–44 years old, but those in rural counties were more likely to be 16–24 years old (65%). High school completers accounted for nearly half of the bridge students in urban counties but only one in seven bridge students in rural counties, reflecting the relatively larger teenage bridge student population in rural counties. Adult Basic Education (ABE) students were more likely to enroll in bridge courses than English as a Second Language (ESL) students. Among ESL students who enrolled in bridge courses, more than 90% lived in urban counties.

Bridge students lived in 440 ZIP Codes across Illinois, representing 32% of all ZIP Codes in the state. Bridge students' locations were primarily concentrated around Chicago (77%), with smaller concentrations around other cities, including Peoria and Bloomington-Normal

in central Illinois and Rockford in northern Illinois. A smaller proportion of bridge students were distributed across southern Illinois, which is predominantly rural.

Did Location Play a Role in Bridge Students' Participation and Outcomes?

Adult education students in Illinois can enroll in multiple bridge courses within the same year. In PY 2022–23, the 2,909 in-person bridge students accounted for 3,997 bridge course enrollments across 125 locations. Three out of four students enrolled in only one bridge course, while the remainder enrolled in two or more bridge courses.

Proximity appeared to play a role in students' participation in bridge courses. Students travelled a maximum of 4.9 miles for 50% of bridge course enrollments and a maximum of 8.7 miles for 75% of bridge course enrollments. Ninety-four percent of enrollments involved travelling less than 20 miles. Relatively few students (196, or 7%) traveled more than 20 miles to reach their bridge course. Students who lived in rural counties were more likely to be in this group.

Overall, approximately 73% of students completed a bridge course, 31% made an Educational Functioning Level (EFL) gain, 1% enrolled in ICAPS programs, and 11% enrolled in postsecondary education. Interestingly, students who lived further away from their bridge course locations (10 miles or more) or had longer commutes (20 minutes or more) were more likely to complete a bridge course, compared with students who travelled shorter distances or had shorter commutes. It is possible that students who chose to enroll in bridge courses located further away selected those courses due to topical relevance and may therefore have been more motivated to complete their courses.

EFL gain rates and ICAPS enrollment rates were highest for bridge students who lived a moderate distance from their course locations (i.e., 2 miles to 9.99 miles, or 5 minutes to 19.99 minutes). The groups most likely to enroll in postsecondary education were students who lived relatively close to their bridge course locations (i.e., 2 miles to 4.99 miles, or 5 minutes to 9.99 minutes), followed by students who had to travel 20 or more miles or for 30 or more minutes. These mixed results suggest there is no clear pattern between distance travelled and outcomes of EFL gain, enrollment in ICAPS, and enrollment in postsecondary education.

Taken together, the descriptive patterns in the data suggest that the relationship between proximity and certain outcomes is complex and may reflect a mix of logistical, motivational, and programmatic factors. It is also likely that proximity to ICAPS and postsecondary programs plays a critical role in entry into these programs. However, this analysis could not consider the spatial location of ICAPS and postsecondary programs as that information was not available in our administrative data.

Future research could expand on these findings in important ways. First, the geographic locations of ICAPS programs and postsecondary institutions could be incorporated to better understand how proximity to these opportunities shapes students' next steps after bridge participation. Examining how bridge courses are geographically positioned in relation to ICAPS and postsecondary offerings could reveal critical gaps in career pathway pipelines. Second, assessing whether these training opportunities are responsive to local labor market needs, and identifying the characteristics of bridge providers that are most effectively aligned, could inform strategies to strengthen pathways to good jobs across Illinois. Finally, while this analysis focused on in-person bridge courses, future studies should examine online and hybrid bridge course offerings, including their geographic reach, student characteristics, and outcomes. Since the COVID-19 pandemic, virtual options for adult education courses have become more common, making it important to explore how these formats are being used in bridge programming and the implications this may have for participation and outcomes.

Introduction

By 2031, nearly three quarters (72%) of jobs in the United States will require education or training beyond high school (Carnevale et al., 2023). Yet millions of adults remain disconnected from the learning opportunities needed to access these jobs. Many of the fastest growing occupations are middle-skills jobs—roles that require more than a high school diploma but less than a 4-year degree—and there are not enough workers with the right credentials to meet demand (McLeod et al., 2025). Nearly 25 million adults lack a high school diploma, and another 74 million do not have any training beyond high school (U.S. Census Bureau, 2023). In Illinois, only 47% of working-age adults hold a post–high school credential and earn wages that align with the expected economic return of that credential (Lumina Foundation, 2024). This gap, reflecting nationwide trends, leaves employers struggling to fill critical roles, while many adults face barriers to upward mobility. Addressing these challenges requires not only expanding education and training pathways, but also ensuring that opportunities are available in the communities where adults live and work.

In 2023, the American Institutes for Research® (AIR®) partnered with the Illinois Community College Board (ICCB) to explore how adults with skill needs in Illinois are preparing for upward economic mobility. Nearly 53,000 adults in the state participate in adult education to improve their skills and employment prospects (National Reporting System [NRS], 2024a). An important component of adult education programming is Integrated Education and Training (IET), authorized by Title II of the Workforce Innovation and Opportunity Act (WIOA). Adult education providers in Illinois implement IET through Integrated Career and Academic Preparation System (ICAPS) programs, which accelerate adults' progress in a career pathway by simultaneously providing contextualized academic instruction, occupational training, and workforce readiness activities (ICCB, 2024). ICAPS programs prepare participants to earn industry-recognized credentials that can unlock middle-skill careers. Similar to postsecondary education, these programs have prerequisite criteria requiring adults to demonstrate a certain skill level in literacy, numeracy, or English proficiency to enroll.

Adult education bridge courses provide literacy, numeracy, or English language instruction contextualized in career clusters. A bridge course can serve as an on-ramp to better educational and employment opportunities.

To better equip adults for ICAPS and postsecondary enrollment, adult education providers implement bridge courses, which provide literacy, numeracy, or English language instruction contextualized in one of 16 nationally recognized career clusters (ICCB, 2013; Nicholson-Tosh & Bragg, 2013). These programs help learners build foundational academic and occupational skills and serve as a critical on-ramp toward workforce preparation, better educational and employment opportunities, and economic mobility—an important step toward closing skill gaps and strengthening the workforce.

In a previous brief, AIR reported on adult education providers' implementation of bridge programming in Illinois and discussed the successes and challenges they faced (Khachikian et al., 2024). The implementation study revealed that transportation and distance—especially in rural areas—were key barriers to learners' participation in bridge programs, highlighting a potential mismatch between where learners live and where programs are offered. To address this, a spatial analysis was conducted to examine geographic access and inform bridge program planning across Illinois.

In this second brief, we present a spatial analysis of in-person bridge course participation during program year (PY) 2022–23, the first full year in which most adult education providers resumed in-person instruction following the COVID-19 pandemic. Specifically, we focus on 2,909 bridge students who enrolled in in-person bridge courses and had a valid ZIP Code in Illinois during PY 2022–23 (July 1, 2022, to June 30, 2023).[2]

Career Clusters Bridge Courses

- Agriculture, Food, and Natural Resources
- Architecture and Construction
- Arts, Audio/Video Technology, and Communications
- Business Management and Administration
- Education and Training
- Finance
- Government and Public Administration
- Health Science
- Hospitality and Tourism
- Human Services
- Information Technology
- Law, Public Safety, Corrections, and Security
- Manufacturing
- Marketing
- Science, Technology, Engineering, and Mathematics
- Transportation, Distribution, and Logistics

The analysis focuses on understanding how geography—specifically, the spatial relationship between where bridge students live and where bridge courses are offered—shapes access, participation, and outcomes. Using ZIP Code–level data and distance-based measures, this research brief addresses three core questions:

1. Where were bridge courses offered across Illinois?
2. Where did bridge students reside, and how far did they travel to attend their bridge courses?
3. Did spatial proximity to bridge course locations play a role in students' participation, persistence, and transition into ICAPS or postsecondary education?

By mapping student and course locations and deriving distance-based measures of proximity, this analysis aims to inform ICCB leadership, local providers, and state policymakers about where to expand bridge programming, how to reduce geographic barriers to access, and what types of support may be needed to ensure that learners can benefit from these opportunities, regardless of where they live. By

[2] The administrative data included 3,169 students who took bridge courses in PY 2022–23. Two hundred and sixty students were excluded from this analysis. Of these, 15 did not have a valid Illinois ZIP Code and the remainder did not take in-person bridge courses. More information on sample selection and methodology can be found in Appendix A.

highlighting patterns in course availability and student travel, this brief offers a new lens for understanding how geography shapes adult learners' educational journeys.

Where Were Bridge Courses Offered?

Community colleges comprise the largest group of adult education providers in Illinois, representing about 46% (NRS, 2024a). Other adult education providers in the state are community-based organizations (32%); local education agencies (15%); faith-based organizations (4%); the Illinois Department of Corrections; and the University of Illinois Chicago, which is a 4-year postsecondary institution. While this overview reflects the broader landscape of adult education providers in Illinois, not all providers offer bridge courses. The spatial analysis presented in this brief focuses specifically on the subset of 67 providers that offered in-person bridge courses during PY 2022–23. Below, we examine where these bridge courses were offered, how many locations each provider operated, and how course availability varied by provider type and geography.

Locations Offering Bridge Courses

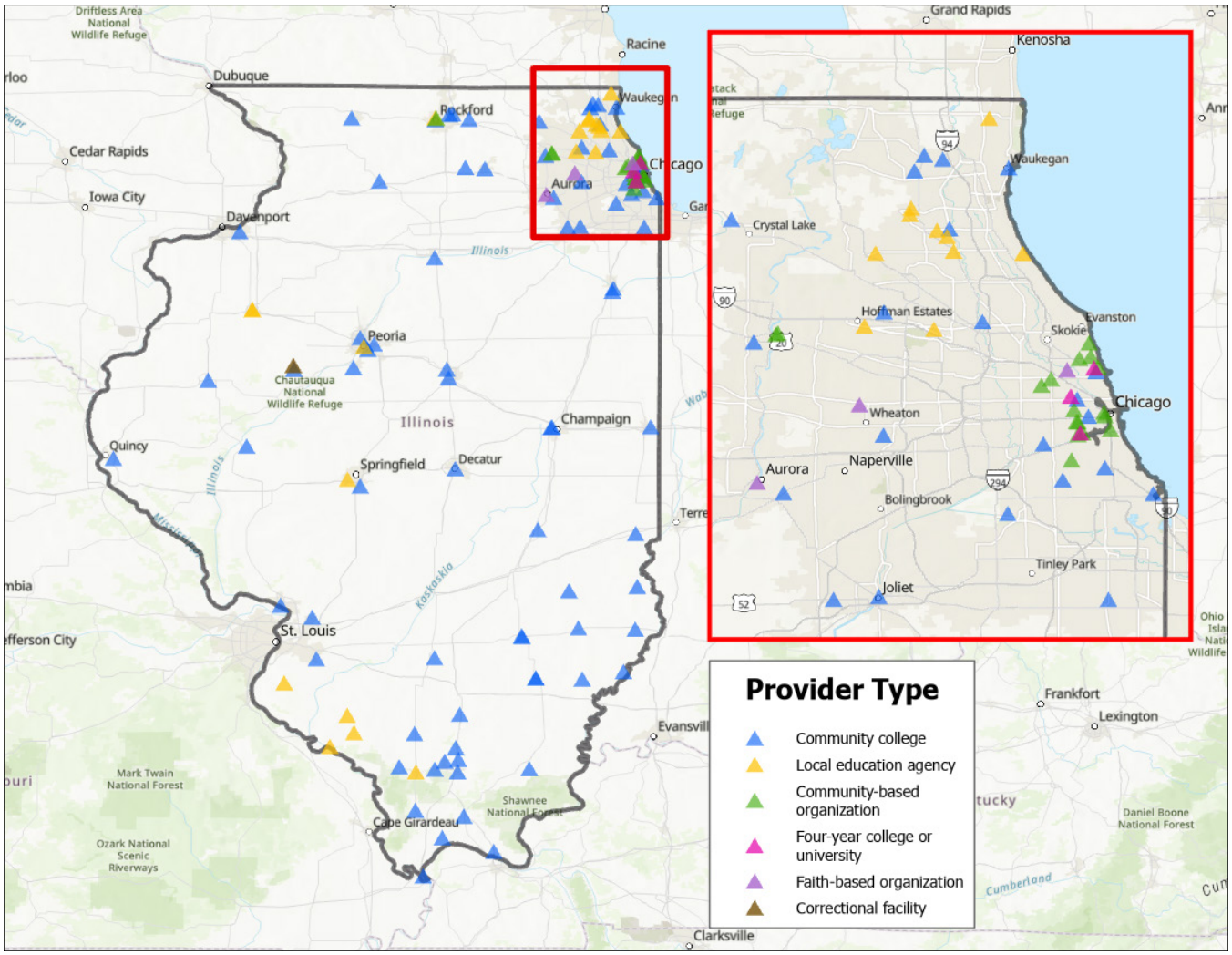
In PY 2022–23, there were 67 adult education providers offering in-person bridge courses at 125 unique locations. To visualize the geographic distribution of these locations, we used a geospatial mapping approach. Specifically, we derived the geographic coordinates of each location by geocoding a combination of the reported building name and the provider organization. Additional methodological details can be found in Appendix A.

Exhibit 1 shows the geographic distribution of bridge course locations by provider type in Illinois, with triangles of a different color representing each provider type. Of the 125 bridge course locations, 57 (46%) were in the Chicago metropolitan statistical area (MSA), which encompasses nine counties in Illinois.[3] Notably, bridge courses offered by community colleges were dispersed throughout the state. Local education agencies also had a presence in multiple regions, though with a more limited geographic reach. Bridge courses offered by community- and faith-based organizations were mostly concentrated in the Chicago MSA.

Bridge courses provided by community- and faith-based organizations were mostly concentrated in the Chicago metropolitan area.

[3] The Chicago MSA includes Cook, DeKalb, DuPage, Grundy, Kane, Kendall, Lake, McHenry, and Will Counties in Illinois, in addition to four counties in Indiana.

Exhibit 1. Bridge Course Locations by Provider Type



Note. The geographic coordinates of bridge course locations were derived by geocoding a combination of the reported building name and the provider organization using ChatGPT and Microsoft Copilot, as well as manual validation and a web search. See Appendix A for additional methodological details.
Source. Illinois Community College Board adult education administrative data, program year 2022–23.

Exhibit 2 provides more details on the 125 locations where bridge courses were offered. The majority of locations were associated with community colleges (64%), followed by local education agencies (16%) and community-based organizations (14%). Institutions of higher education—including community colleges and one 4-year university—were most likely to offer bridge courses in multiple locations, perhaps reflecting larger infrastructure supports and institutional resources.

Exhibit 2. Number of Providers and Locations Offering Bridge Courses by Provider Type

Provider type	Number of locations	Percentage of locations	Number of providers	Average locations per provider
Community colleges	80	64.0%	36	2.2
Local education agencies	20	16.0%	10	2.0
Community-based organizations	18	14.4%	16	1.1
Faith-based organizations	3	2.4%	3	1.0
Four-year university	3	2.4%	1	3.0
Correctional facility	1	0.8%	1	1.0
Total	**125**	**100%**	**67**	**1.9**

Note. The 4-year university is the University of Illinois Chicago. The correctional facility is the Illinois Department of Corrections. Percentages may not sum to 100 because of rounding.
Source. Illinois Community College Board adult education administrative data, program year 2022–23.

As shown in **Exhibit 3**, more than two thirds of these providers (69%) offered bridge courses at one location. About 15% offered bridge courses at two locations, about 6% offered bridge courses at three or four locations, and 10% offered bridge courses at five or more locations. Of the seven providers with five or more locations, six were community colleges and one was a local education agency.

Exhibit 3. Number of Bridge Course Locations Offered by the Same Provider

Number of bridge course locations	Number of providers	Percentage of providers
One location	46	68.7%
Two locations	10	14.9%
Three locations	2	3.0%
Four locations	2	3.0%
Five or more locations	7	10.4%

Note. Percentages may not sum to 100 because of rounding.
Source. Illinois Community College Board adult education administrative data, program year 2022–23.

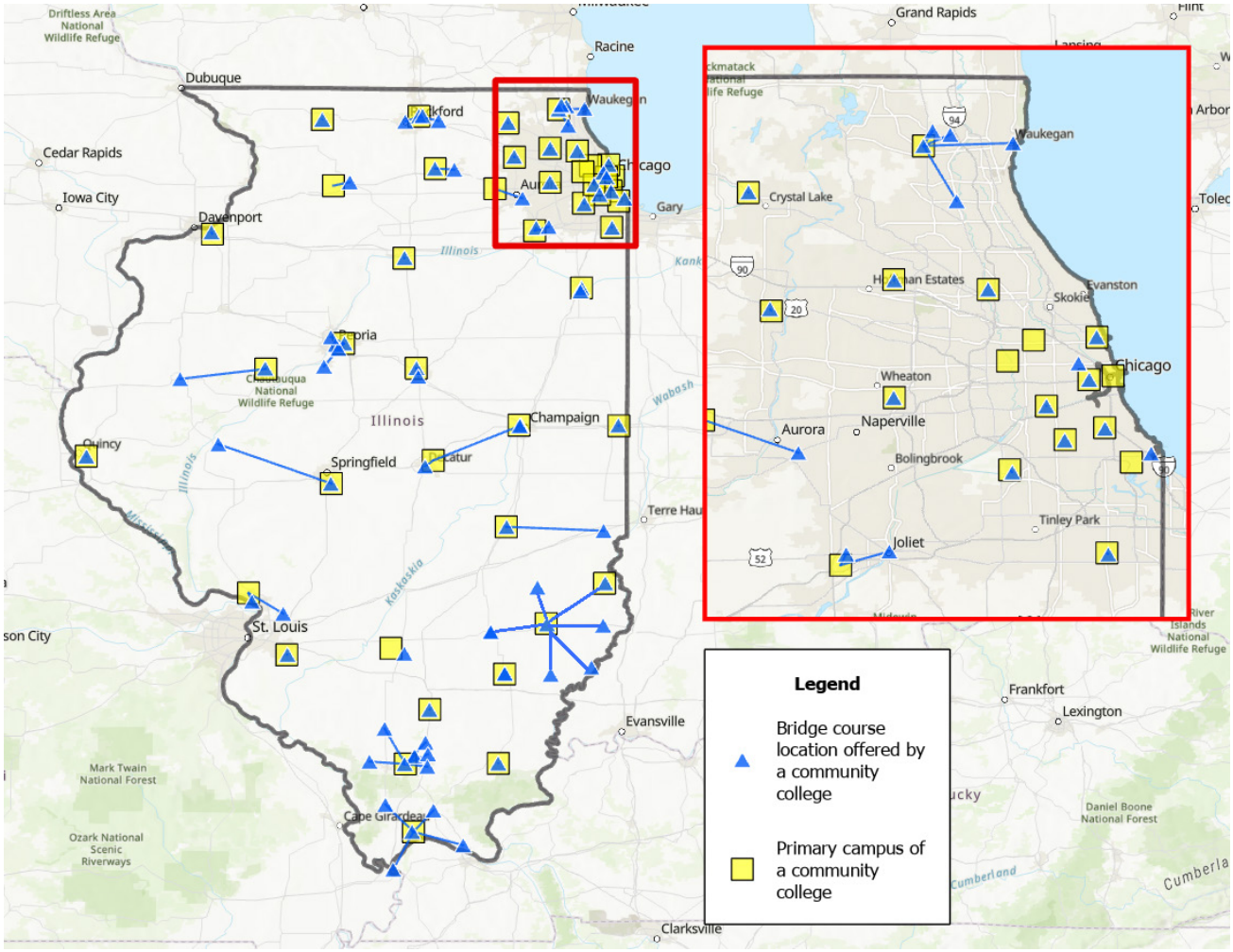
Recognizing that the majority of bridge courses were offered by community colleges, we examined the overlap between the locations of these bridge courses and community colleges' primary campuses.

In **Exhibit 4**, the blue triangles represent locations where bridge courses were offered by a community college. The yellow squares represent the community college's primary campus.[4] Blue lines indicate

[4] We collected the geographic coordinates for each community college's physical location from the Integrated Postsecondary Education Data System (IPEDS) administered by the U.S. Department of Education's National Center for Education Statistics. IPEDS contains coordinate information based on the college's reported primary physical address. This information allowed us to examine whether bridge course locations were proximal to colleges' primary campuses. Note, however, that community colleges may have several campus locations (e.g., satellite campuses) beyond their primary campus, and bridge courses may be located within or beyond the primary campus location.

bridge course locations connected to a specific community college provider. As the map in Exhibit 4 shows, bridge course locations were typically near community colleges' primary physical address. To better understand this pattern, we calculated distances between the 80 bridge course locations offered by community colleges and the primary campuses of the 36 community college providers. Nearly half of these bridge course locations (46%) were within a 1-mile radius of the college campus's primary physical address. Sixty-one percent were located within a 5-mile radius and 76% were located within a 10-mile radius.

Exhibit 4. Locations of Bridge Courses Offered by Community Colleges



Note. The blue triangles represent locations where bridge courses were offered by a community college. The yellow squares represent the community college's primary campus. Each primary campus location reflects the geographic coordinates of the community college's primary administrative address, as reported to the National Center for Education Statistics for the annual Integrated Postsecondary Education Data System (IPEDS) data collection. This single location may not reflect all satellite or off-campus locations operated by the institution. Blue lines indicate bridge course locations connected to a specific community college provider.

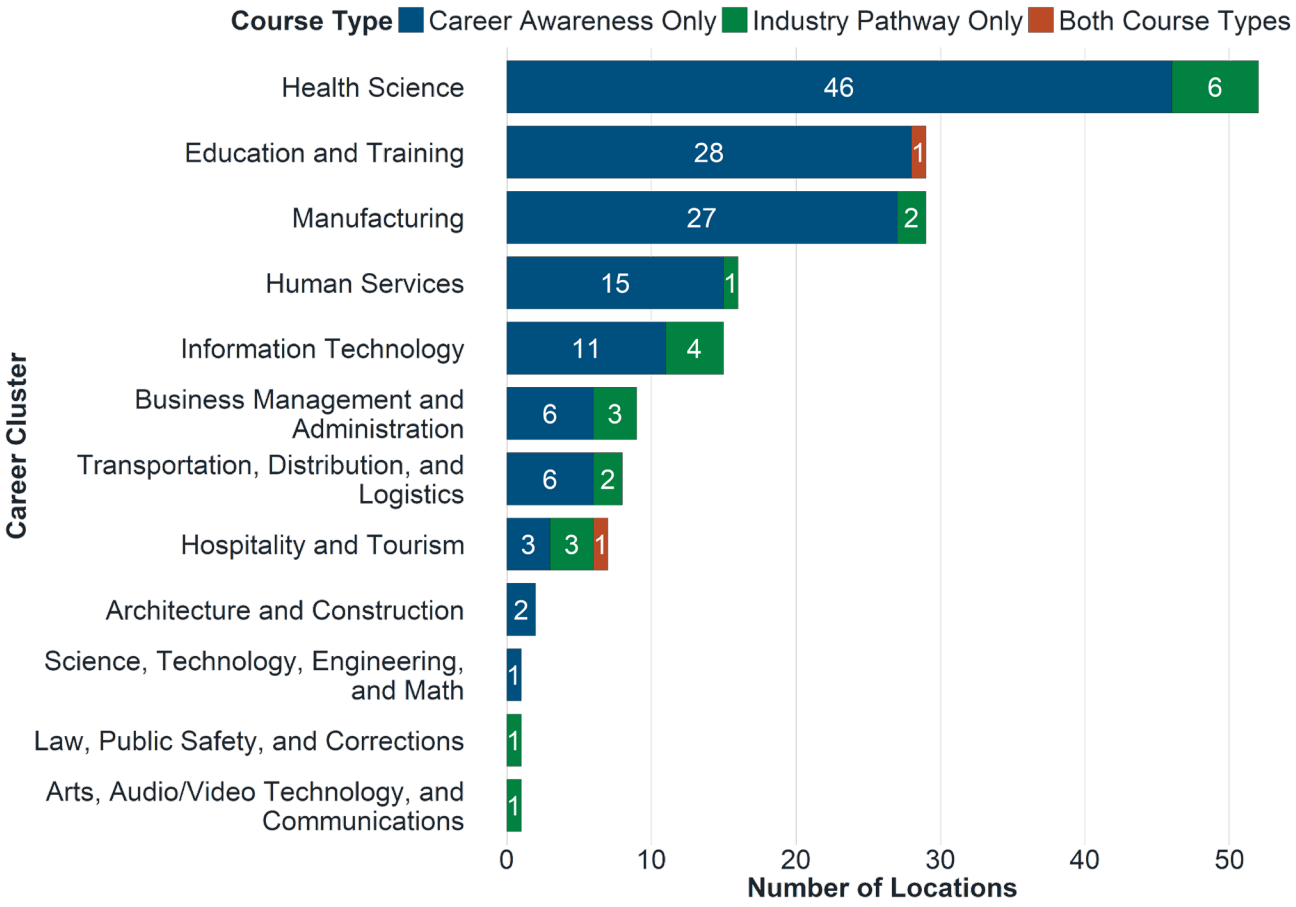
Source. Illinois Community College Board adult education administrative data, program year 2022–23; and IPEDS Institutional Characteristics survey component (2023, provisional data).

Bridge Course Career Clusters and Course Types

As previously mentioned, bridge courses in Illinois are aligned with one of 16 nationally recognized career clusters. In addition, each bridge course in PY 2022–23 was classified as either a bridge to an industry pathway or a more general career awareness bridge course.[5] Both types of course are aligned with career clusters. While a career awareness bridge course introduces learners to a career cluster through foundational skill building and exploration, an industry pathway bridge course prepares learners for specific occupations within that cluster through more targeted, technical instruction.

Exhibit 5 shows the number of locations that offered bridge courses in each of these categories in PY 2022–23.

Exhibit 5. Number of Locations Offering Bridge Courses by Career Cluster and Course Type



Note. The blue bars represent locations that offered career awareness bridge courses, the green bars represent locations that offered industry pathway bridge courses, and the orange bars represent locations that offered both types of course.
Source. Illinois Community College Board adult education administrative data, program year 2022–23.

[5] For the purposes of this analysis, ICCB leadership clarified whether each bridge course was categorized as a career awareness bridge or as a bridge to an industry pathway.

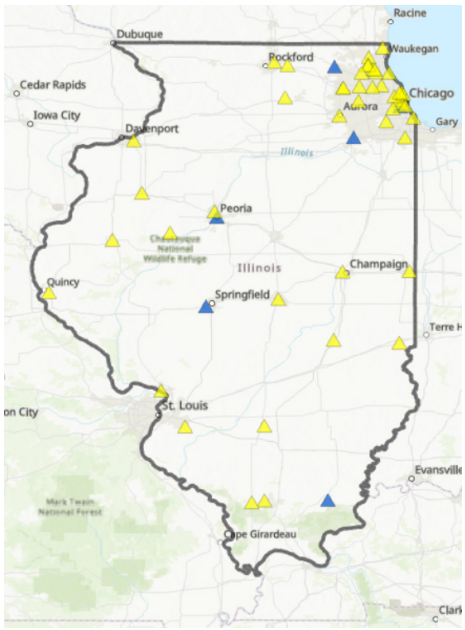
The blue bars represent locations that offered career awareness bridge courses, the green bars represent locations that offered industry pathway bridge courses, and the orange bars represent locations that offered both types of course in the same career cluster. The top three career clusters by number of bridge course locations were Health Science (52 locations), Education and Training (29 locations), and Manufacturing (29 locations). For nearly all career clusters, the vast majority of bridge course locations offered career awareness bridge courses rather than industry pathway bridge courses. Exhibit B1 in Appendix B summarizes this information in tabular form.

Bridge courses in the Health Science, Education and Training, and Manufacturing career clusters were widely dispersed across the state.

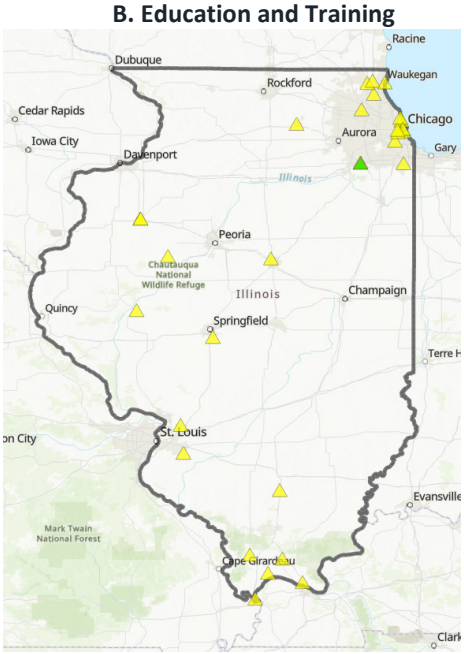
Exhibit 6 displays the geographic distribution of bridge course locations in Illinois by career cluster. Maps A–H each focus on a specific career cluster, while Map I presents multiple career clusters with only one or two bridge course locations. Yellow triangles indicate locations that offered career awareness bridge courses, blue triangles represent locations that offered industry pathway bridge courses, and green triangles indicate locations that offered both types of bridge course. Bridge courses in a few career clusters—Health Science (Map A), Education and Training (Map B), and Manufacturing (Map C)—were more widely dispersed across the state. Bridge courses in certain other career clusters were relatively limited outside of the Chicago area, such as Business Management and Administration (Map F); Hospitality and Tourism (Map G); and Transportation, Distribution, and Logistics (Map H). Overall, these maps suggest that students living in and around Chicago can choose from bridge courses across multiple career clusters. However, students living in southern Illinois cannot readily access bridge courses in certain career clusters, such as Information Technology and Business Management and Administration. This uneven distribution may reflect guidance received by bridge providers to align offerings with local industry needs (ICCB, 2013).

Exhibit 6. Bridge Course Locations by Career Cluster and Course Type

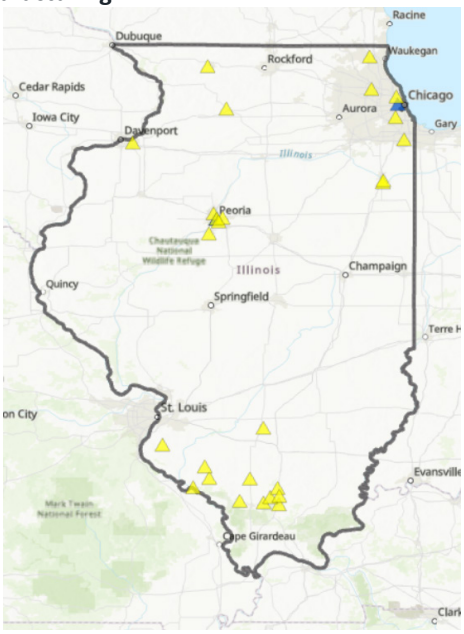
A. Health Science



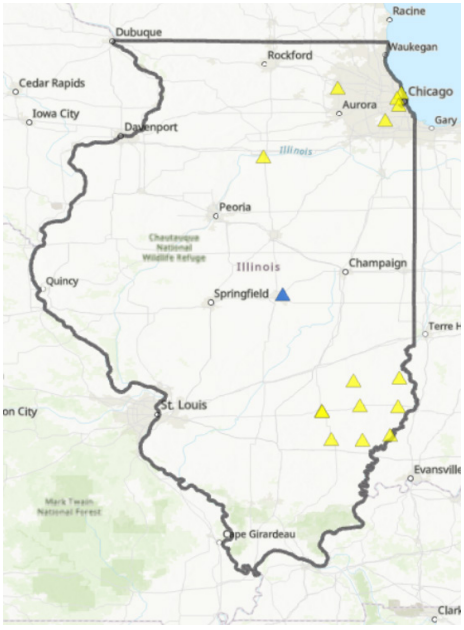
B. Education and Training



C. Manufacturing



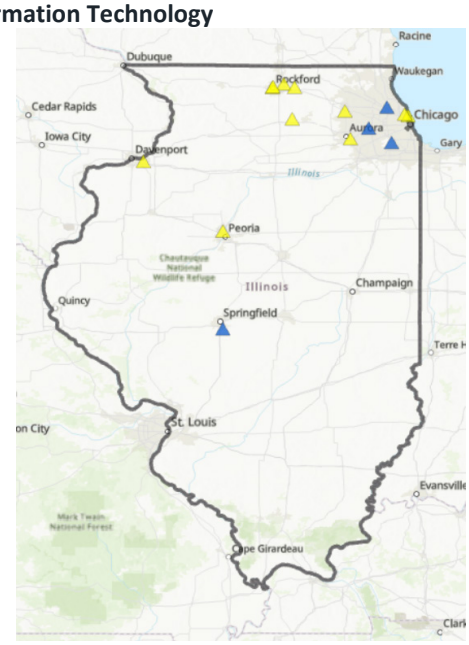
D. Human Services



Legend

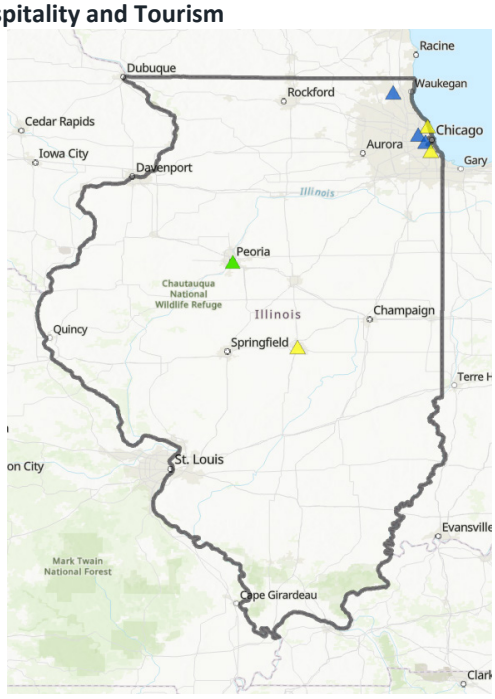
Industry Pathway	Career Awareness	Both Course Types

E. Information Technology

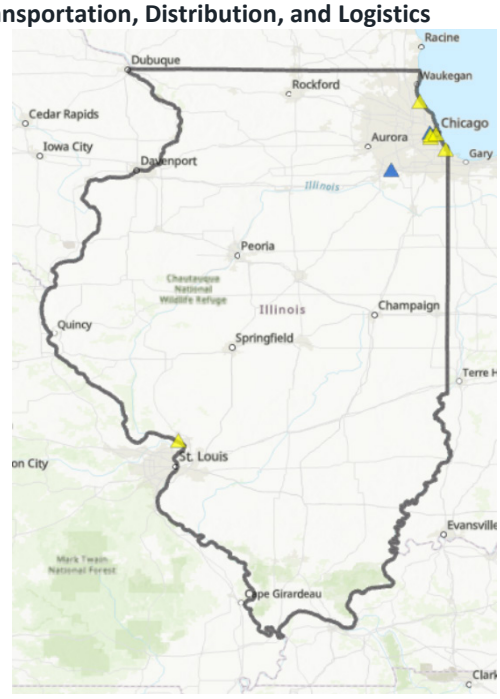


F. Business Management and Administration

G. Hospitality and Tourism



H. Transportation, Distribution, and Logistics



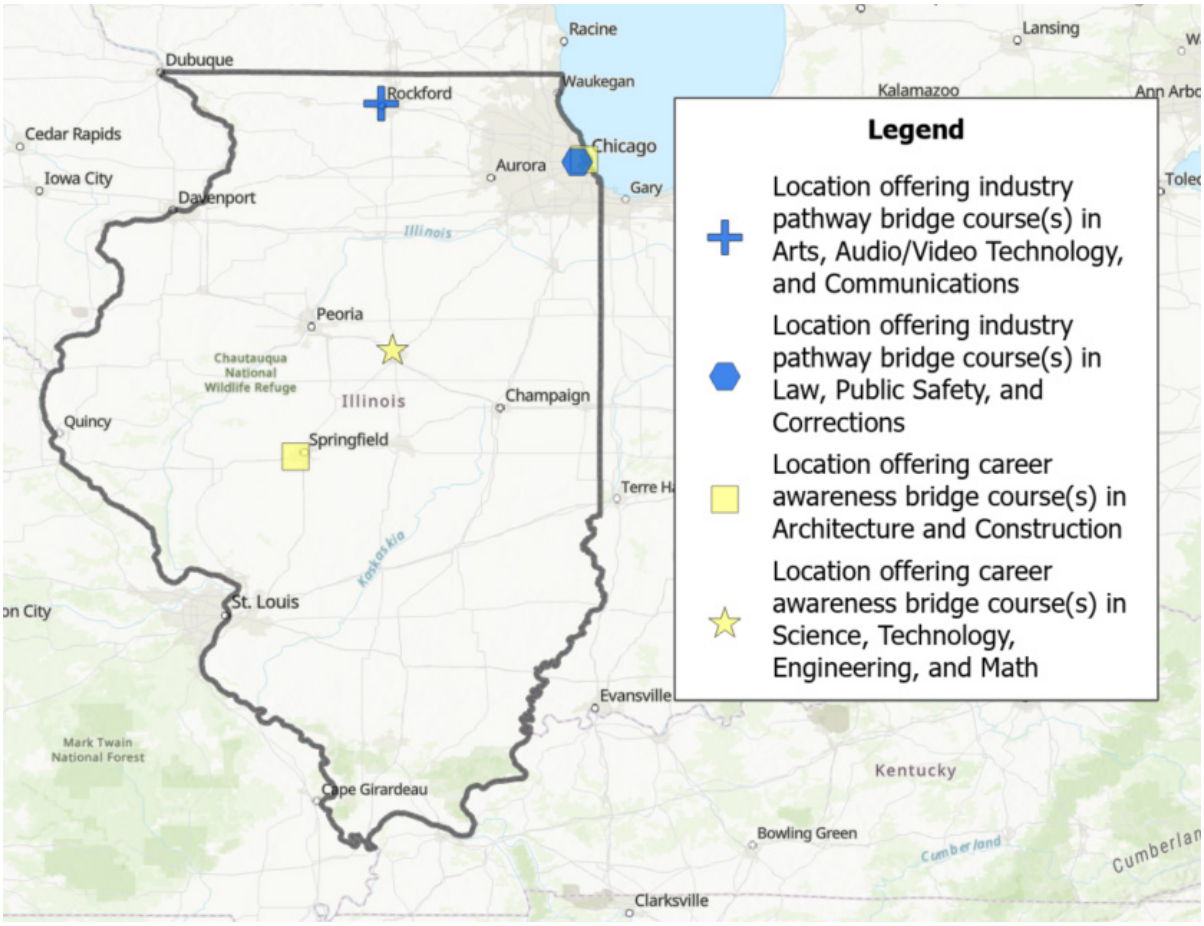
Legend

▲ Industry Pathway

△ Career Awareness

▲ Both Course Types

I. All Other Career Clusters



Who Were the Bridge Students and Where Did They Live?

Adult education providers in Illinois serve individuals from various backgrounds. Students can enroll in Adult Basic Education (ABE)[6] or English as a Second Language (ESL) programming, which are designed to close different skills gaps in the workforce. ABE instruction focuses on improving literacy and numeracy skills, while ESL instruction focuses on building English proficiency. Of the 52,950 adult education students in the state in PY 2022–23, the majority enrolled in ESL programming (69%). The remainder (31%) enrolled in ABE programming (NRS, 2024a). Overall, students represented a wide age range, with nearly a quarter (23%) under age 25 and a quarter (26%) over age 44.[7] Over half (52%) of all adult education students were Hispanic or Latino, nearly a quarter (24%) were White, and about one in eight (12%) were Black or African American. Over half (52%) had a high school diploma or

[6] ABE programming also includes Adult Secondary Education.
[7] Individuals as young as 16 years old can enroll in publicly funded adult education programming if they are not attending high school.

equivalent credential. Nearly two thirds (63%) were female, reflecting a national trend where women are more likely than men to participate in adult education (NRS, 2024b). Overall, about one in seven adult education students (14%) participated in distance education.

Bridge Students' Characteristics

In PY 2022–23, a total of 3,169 students enrolled in adult education bridge courses in Illinois. Based on an examination of administrative records, we determined that 2,909 students (92%) likely attended bridge courses in person.[8]

Background Characteristics

Nearly half of all bridge students were 25–44 years old, but those in rural counties were more likely to be younger.

Reflecting overall adult education trends in Illinois, bridge students varied in terms of their background characteristics. **Exhibit 7** summarizes bridge students' race and ethnicity, gender, age, and high school completion status. The last two columns report numbers separately for the 2,320 students (80%) living in urban counties and the 589 students (20%) living in rural counties.[9] Overall, about a third of bridge students (34%) were Hispanic or Latino, a little under a third (31%) were White, and a quarter (25%) were Black or African American. Bridge students living in rural counties were more likely to be White, while those living in urban counties were more likely to be Black or Latino. Female students (60%) outnumbered male students (40%), but the gender distribution was similar between bridge students residing in urban and rural counties.

Exhibit 7. Bridge Students' Background Characteristics

Bridge student characteristic	All bridge students	Bridge students in urban counties	Bridge students in rural counties
Total students	2,909 (100.0%)	2,320	589
Race and ethnicity			
Hispanic or Latino	1,002 (34.4%)	943 (40.6%)	59 (10.0%)
White	899 (30.9%)	484 (20.9%)	415 (70.5%)
Black or African American	717 (24.6%)	636 (27.4%)	81 (13.8%)
All other groups	291 (10.0%)	257 (11.1%)	34 (5.8%)
Gender			

[8] Of the 260 students who were excluded from our spatial analyses, 15 students did not have a valid Illinois ZIP Code and 245 students likely attended virtual courses. See Appendix A for additional methodological details.

[9] Urban and rural classifications were determined at the county level based on U.S. Department of Agriculture rural–urban continuum codes, following data operationalization implemented by the Illinois Department of Public Health. See Appendix A for additional methodological details.

Bridge student characteristic	All bridge students	Bridge students in urban counties	Bridge students in rural counties
Female	1,754 (60.3%)	1,416 (61.0%)	338 (57.4%)
Male	1,155 (39.7%)	904 (39.0%)	251 (42.6%)
Age			
16–18 years	447 (15.4%)	227 (9.8%)	220 (37.4%)
19–24 years	556 (19.1%)	393 (16.9%)	163 (27.7%)
25–34 years	768 (26.4%)	673 (29%)	95 (16.1%)
35–44 years	640 (22.0%)	578 (24.9%)	62 (10.5%)
45–54 years	357 (12.3%)	319 (13.8%)	38 (6.5%)
55 years or older	141 (4.8%)	130 (5.6%)	11 (1.9%)
High school completion			
Completed high school	1,215 (41.8%)	1,130 (48.7%)	85 (14.4%)
Did not complete high school	1,694 (58.2%)	1,190 (51.3%)	504 (85.6%)

Note. Students were considered to have completed high school if they had a high school diploma or an equivalent credential. Urban and rural classifications were determined at the county level based on U.S. Department of Agriculture rural–urban continuum codes, following data operationalization implemented by the Illinois Department of Public Health. See Appendix A for additional methodological details. Percentages may not sum to 100 because of rounding.
Source. Illinois Community College Board adult education administrative data, program year 2022–23.

For bridge students as a whole, the largest age group was younger adults ages 25–34 (26%), followed by older adults ages 35–44 (22%). This pattern was also observed among students in urban counties. In rural counties, however, over two thirds of students were ages 16–24, indicating that teenagers and young adults in rural areas were more likely to enroll in bridge courses.

In terms of educational attainment, the majority of bridge students (58%) had not completed high school. This divide was smaller in urban counties, where nearly half of the bridge students (49%) had completed high school. In contrast, only one in seven bridge students (14%) living in rural counties had completed high school, likely reflecting the relatively larger teenage bridge student population in rural counties. Of the 85 rural students who had completed high school, approximately two thirds (62%) were ESL students.

Educational Functioning Levels

ABE students were more likely to enroll in bridge courses than ESL students. The 2,909 bridge students included 1,784 ABE students (61%) and 1,125 ESL students (39%). All students completed standardized

assessments to determine their Educational Functioning Level (EFL) at entry.[10] While there is no specific EFL prerequisite, bridge programming is generally intended for ABE students whose reading and mathematics skills are at or above roughly the Grade 6 level and/or ESL students whose English proficiency is at or above the low-intermediate ESL level (ICCB, 2013).

ABE students were more likely to enroll in bridge courses compared with ESL students, even though there were more ESL students than ABE students in Illinois during PY 2022–23.

Exhibit 8 reports EFLs at entry for bridge students enrolled in ABE. The last two columns report numbers separately for the 1,271 students (71%) living in urban counties and the 513 students (29%) living in rural counties. EFLs 5 and 6 are considered Adult Secondary Education, indicating skills at the high school level. Overall, a little over a quarter of ABE students participating in bridge programs (27%) were at EFL 5 or 6, while the remainder were at EFL 3 or 4. This distribution varied across urban and rural areas, with rural students more likely to be at higher EFLs. Twenty percent of students in urban counties and 43% of students in rural counties were at EFL 5 or 6 when they enrolled in a bridge program.

Exhibit 8. Educational Functioning Level at Entry for Bridge Students in Adult Basic Education Programming

Bridge student characteristic	All bridge students	Bridge students in urban counties	Bridge students in rural counties
Total ABE students	1,784 (100.0%)	1,271	513
ABE students at EFL 3	710 (39.8%)	605 (47.6%)	105 (20.5%)
ABE students at EFL 4	593 (33.2%)	407 (32.0%)	186 (36.3%)
ABE students at EFL 5	304 (17.0%)	171 (13.5%)	133 (25.9%)
ABE students at EFL 6	177 (9.9%)	88 (6.9%)	89 (17.3%)

Note. ABE refers to Adult Basic Education. EFL refers to Educational Functioning Level. No bridge students were at EFL 1 or 2. Urban and rural classifications were determined at the county level based on U.S. Department of Agriculture rural–urban continuum codes, following data operationalization implemented by the Illinois Department of Public Health. See Appendix A for additional methodological details. Percentages may not sum to 100 because of rounding.
Source. Illinois Community College Board adult education administrative data, program year 2022–23.

Exhibit 9 reports EFLs at entry for bridge students enrolled in ESL, the vast majority of whom (93%) lived in urban counties. The last two columns report numbers separately for the 1,049 students in urban counties and the 76 students in rural

Among ESL students who enrolled in bridge courses, over 90% lived in urban counties.

[10] EFLs are different skill levels within ABE programming and ESL programming, ranging from 1 to 6.

counties. Overall, more than two thirds of ESL students participating in bridge programs were at EFL 5 or 6 (71%), about a quarter were at EFL 4 (25%), and the remainder were at EFL 3 (4%). This distribution was largely similar for students in urban and rural counties.

Exhibit 9. Educational Functioning Level at Entry for Bridge Students in ESL Programming

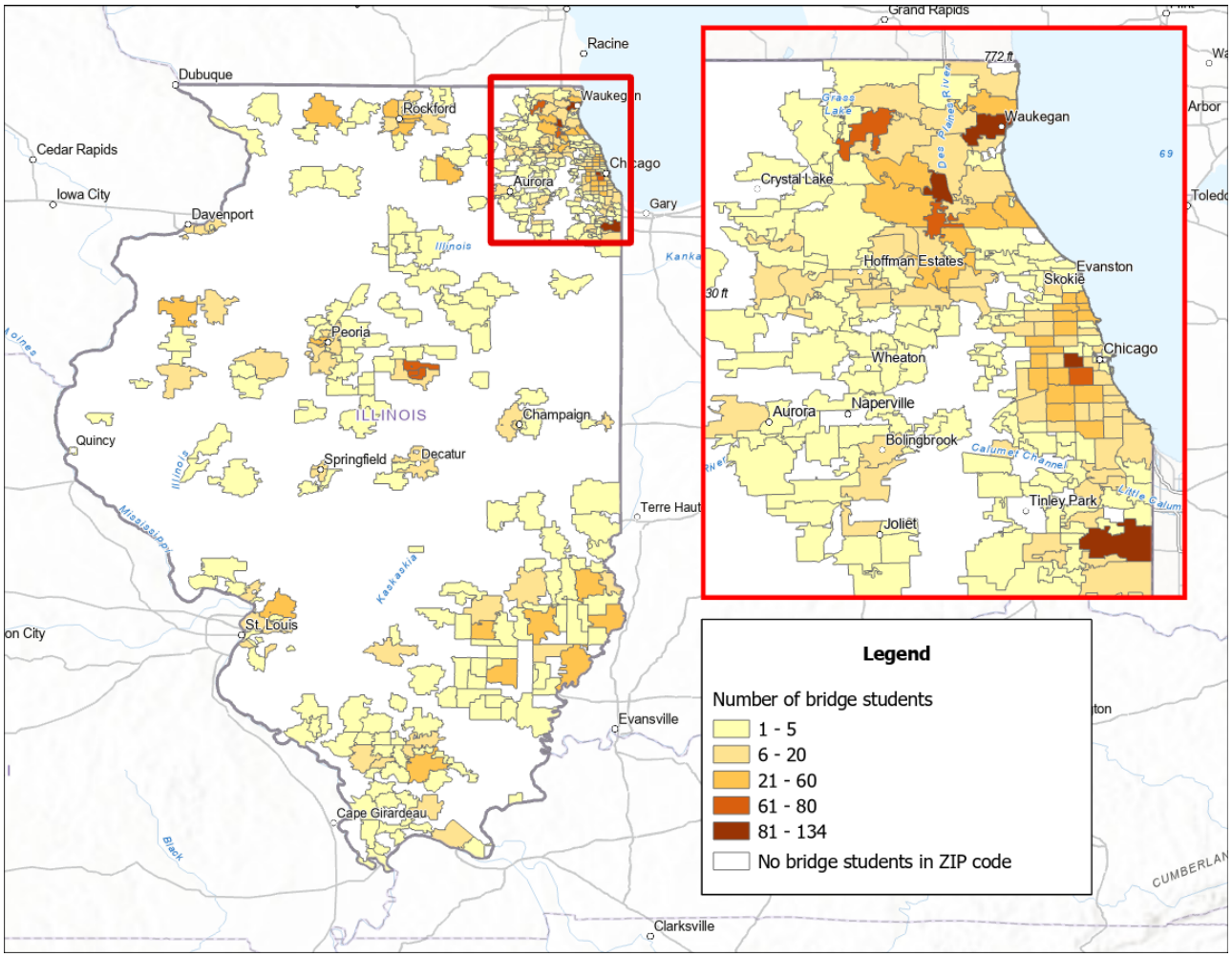
Bridge student characteristic	All bridge students	Bridge students in urban counties	Bridge students in rural counties
Total ESL students	1,125 (100.0%)	1,049	76
ESL students at EFL 3	47 (4.2%)	41 (3.9%)	6 (7.9%)
ESL students at EFL 4	280 (24.9%)	261 (24.9%)	19 (25.0%)
ESL students at EFL 5	385 (34.2%)	364 (34.7%)	21 (27.6%)
ESL students at EFL 6	413 (36.7%)	383 (36.5%)	30 (39.5%)

Note. EFL refers to Educational Functioning Level. ESL refers to English as a Second Language. No bridge students were at EFL 1 or 2. Urban and rural classifications were determined at the county level based on U.S. Department of Agriculture rural–urban continuum codes, following data operationalization implemented by the Illinois Department of Public Health. See Appendix A for additional methodological details. Percentages may not sum to 100 because of rounding.
Source. Illinois Community College Board adult education administrative data, program year 2022–23.

Bridge Students' Locations of Residence

To visualize bridge students' residence location in Illinois, we leveraged administrative data on students' ZIP Code of residence. **Exhibit 10** shows the concentration of bridge students in each ZIP Code. The areas of the map shaded white represent ZIP Codes where no bridge students lived. Light yellow shading represents ZIP Codes where no more than five bridge students lived. Darker colors indicate larger numbers of bridge students living in the ZIP Code, with the darkest orange representing ZIP Codes with 81–134 bridge students. Overall, bridge students lived in 440 unique ZIP Codes across Illinois, representing 32% of all ZIP Codes in the state. Among the 10 ZIP Codes in the two darkest shades of orange, seven ZIP Codes were in the Chicago MSA and the remaining three were in and around Bloomington-Normal in central Illinois.

Exhibit 10. Number of Bridge Students by Zip Code of Residence



Note. Bridge students lived in 440 unique ZIP Codes in Illinois. White areas on the map represent ZIP Codes where no bridge students lived.

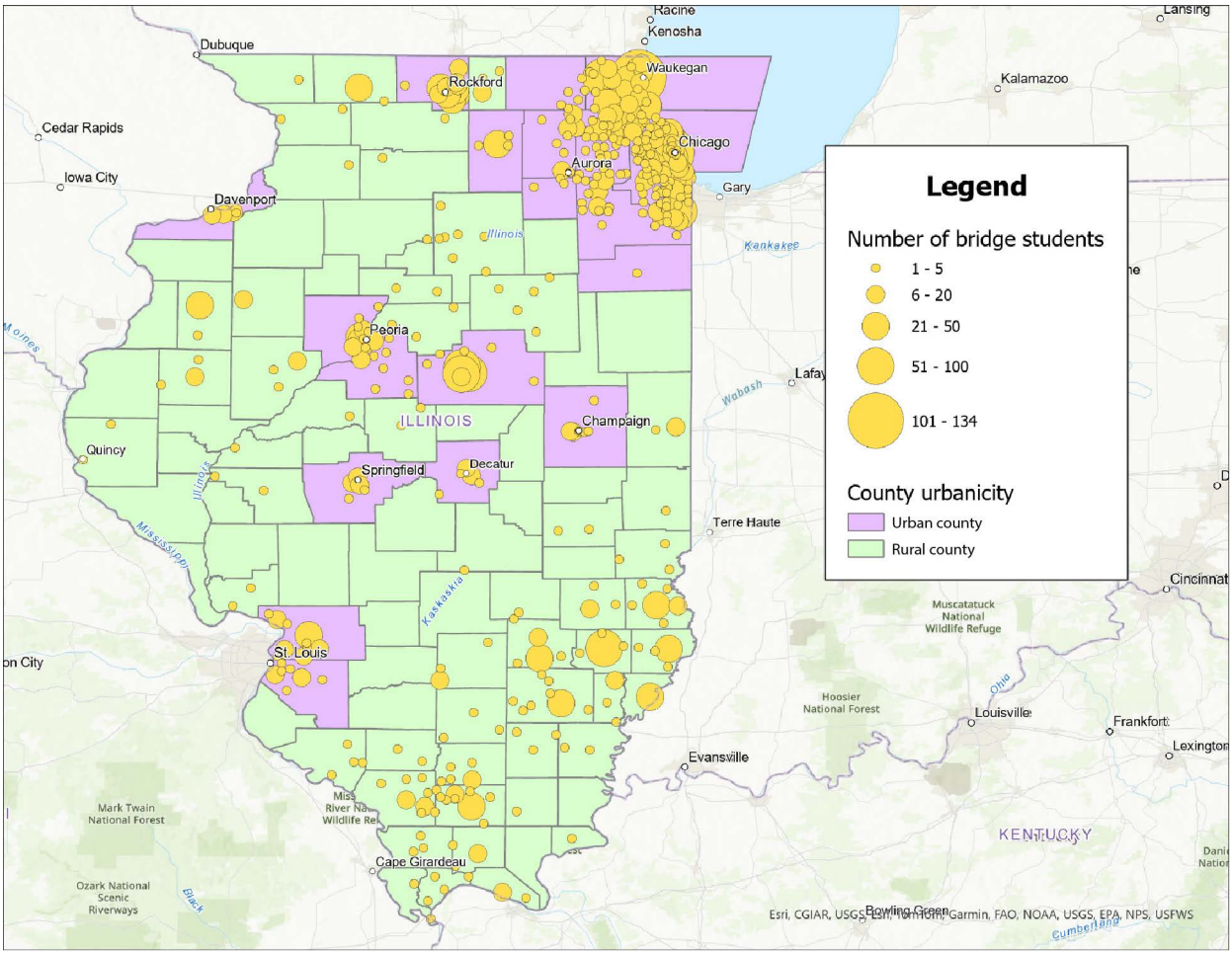
Source. Illinois Community College Board adult education administrative data, program year 2022–23.

Bridge students were primarily concentrated around the Chicago metropolitan area, with smaller concentrations in Peoria, Bloomington-Normal, and Rockford.

To further explore where bridge students lived, we mapped each student's approximate location using the estimated "center of population" for their ZIP Code, known as the population-weighted centroid. Additional methodological details can be found in Appendix A. **Exhibit 11** shows the number of students, grouped by ZIP Code and mapped at the centroid location, who lived in urban and rural counties. Rural counties are shaded in green. Urban counties are shaded in purple. Orange circles reflect the number of bridge students residing at each ZIP Code. These circles have five different sizes, reflecting different numbers of bridge students residing at that location (with one to five being the smallest and 101–134 being the largest). Larger circles correspond to larger numbers of students. There was a notable concentration of bridge students in the

northeastern region of the state, particularly around Chicago. Of the 2,909 in-person bridge students in Illinois, 2,244 students (77%) lived within the Chicago MSA. Bridge students were also concentrated to a lesser extent around other cities, including Peoria and Bloomington-Normal in central Illinois and Rockford in northern Illinois. Urban counties had larger numbers of bridge students, though bridge students were also distributed across southern Illinois, which is predominantly rural. For instance, there were notable concentrations of bridge students in Clay, Lawrence, Richland, Wayne, Wabash, and Williamson Counties.

Exhibit 11. Number of Bridge Students by ZIP Code Centroid Location and County Urbanicity



Note. Each bridge student's approximate location is represented by the estimated "center of population" for the student's ZIP Code, known as the population-weighted centroid. This means the geographic coordinates do not reflect a student's exact home address but rather the central point of their ZIP Code based on its population distribution. These coordinates were obtained from a national geographic dataset provided by the Department of Housing and Urban Development's Geographic Information Systems Help Desk, as individual student address data are not available. Urban and rural classifications were determined at the county level based on U.S. Department of Agriculture rural–urban continuum codes, following data operationalization implemented by the Illinois Department of Public Health. See Appendix A for additional methodological details.

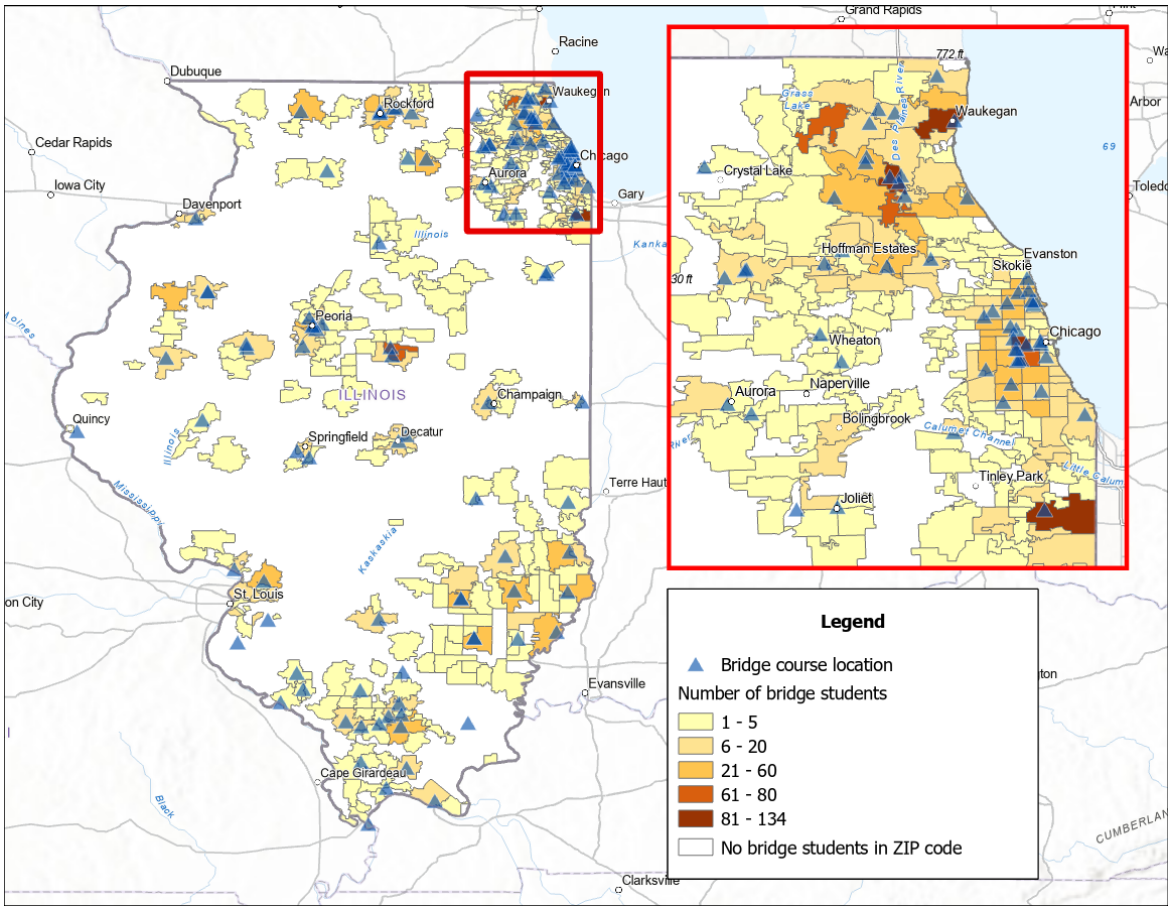
Source. Illinois Community College Board adult education administrative data, program year 2022–23.

Did Location Play a Role in Bridge Students' Participation and Outcomes?

Adult education students in Illinois can enroll in multiple bridge courses within the same year. In PY 2022–23, the 2,909 in-person bridge students accounted for 3,997 bridge course enrollments across 125 locations. Three out of four students (75%) enrolled in only one bridge course, while the remainder (25%) enrolled in two or more bridge courses.[11]

Exhibit 12 shows the concentration of bridge students residing in each ZIP Code, along with the locations where bridge courses were offered.

Exhibit 12. Bridge Course Locations and Number of Bridge Students by Zip Code of Residence



Note. Bridge students lived in 440 unique ZIP Codes in Illinois. White areas on the map represent ZIP Codes where no bridge students lived. *Source.* Illinois Community College Board adult education administrative data, program year 2022–23.

[11] Data on why some students enrolled in multiple bridge courses are unavailable. Course durations ranged from about 4 weeks to the entire year. Enrolling in brief courses may have prompted students to enroll in more than one course. Other factors may also have contributed.

The areas of the map shaded white represent ZIP Codes where no bridge students lived. Light yellow shading represents ZIP Codes where no more than five bridge students lived. Darker colors indicate larger numbers of bridge students living in the ZIP Code, with the darkest orange representing ZIP Codes with 81–134 bridge students. The blue triangles represent bridge course locations. Many bridge course locations were in ZIP Codes where more bridge students lived. Bridge course locations were heavily concentrated in the Chicago MSA, where larger numbers of bridge students lived.

Distance Between Bridge Students' Locations and Course Locations

To examine the distance between students' locations and bridge course locations, we analyzed three measures: ZIP Code proximity, travel distance (miles), and travel time (minutes). Because some students enrolled in multiple bridge courses, potentially at different locations, we analyzed distance-based measures for all 3,997 bridge course enrollments, covering all bridge course locations for 2,909 students.

ZIP Code Proximity

For each bridge course enrollment, we determined whether the student had to travel within the same ZIP Code as their residence, to a neighboring ZIP Code, or beyond their neighboring ZIP Code to reach the bridge course location. **Exhibit 13** summarizes the distribution of course enrollments across these categories. For approximately 60% of bridge course enrollments, students traveled either within their own or to a neighboring ZIP Code. For the remaining 40% of enrollments, students traveled beyond their neighboring ZIP Codes to reach their bridge course locations.

Exhibit 13. Zip Code Proximity for Bridge Course Enrollments

ZIP Code proximity	Number of bridge course enrollments	Percentage of bridge course enrollments
Traveled within the same ZIP Code	1,229	30.7%
Traveled to a neighboring ZIP Code	1,185	29.6%
Traveled beyond neighboring ZIP Codes	1,583	39.6%
Total	**3,997**	**100.0%**

Note. The total number of bridge course enrollments was 3,997. Percentages may not sum to 100 because of rounding.
Source. Illinois Community College Board adult education administrative data, program year 2022–23.

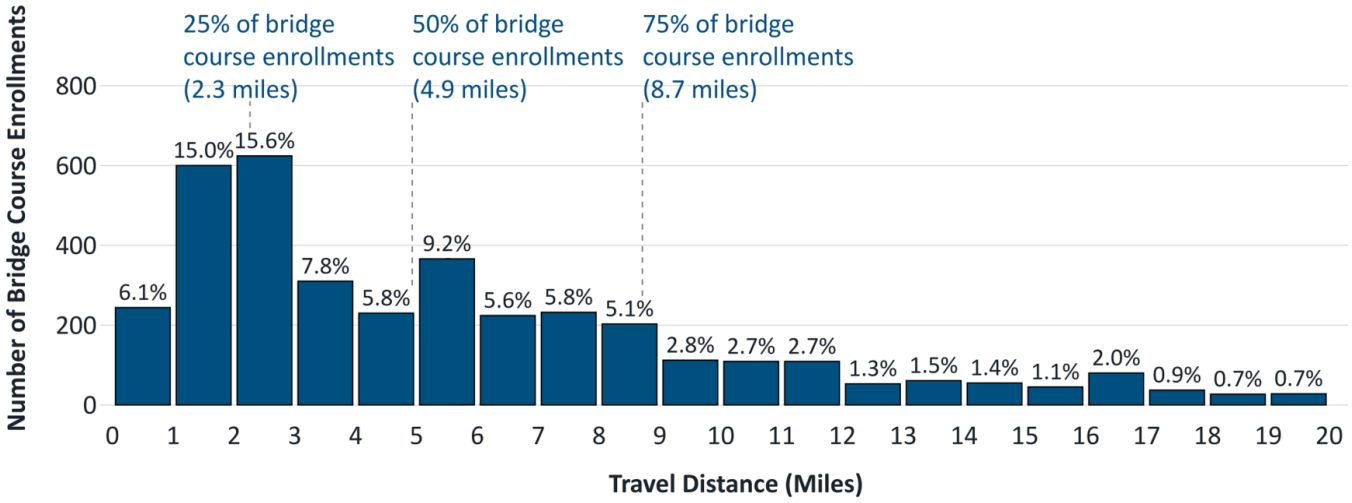
Travel Distance

Travel distance refers to the driving distance between the population-weighted centroid location of a student's ZIP Code and the location of their bridge course. See Appendix A for additional methodological details.

For 50% of bridge course enrollments, students had to travel less than 5 miles to reach their course locations.

Exhibit 14 shows the distribution of bridge course enrollments based on travel distance. Taller bars represent larger numbers of course enrollments within specific distance ranges. Students had to travel a maximum of 2.3 miles for 25% of bridge course enrollments, a maximum of 4.9 miles for 50% of bridge course enrollments, and a maximum of 8.7 miles for 75% of bridge course enrollments. Ninety-four percent of enrollments involved a travel distance of less than 20 miles (not shown in Exhibit 14).

Exhibit 14. Number of Bridge Courses by Students' Travel Distance



Note. The total number of bridge course enrollments was 3,997.
Source. Illinois Community College Board adult education administrative data, program year 2022–23.

Relatively few students (196, or fewer than 7%) traveled more than 20 miles (not shown in Exhibit 14) to reach their bridge courses, with 143 staying within 40 miles. Students who lived in rural counties were more likely to travel more than 20 miles. While rural students comprised 42% of students with a travel distance of more than 20 miles, the percentage of rural students was lower in other distance categories. For instance, rural students represented 26% of students who traveled 10 miles to 20 miles; 9% of students who traveled 5 miles to 9.9 miles; 19% of students who traveled 2 miles to 4.9 miles; and 25% of students who traveled less than 2 miles.

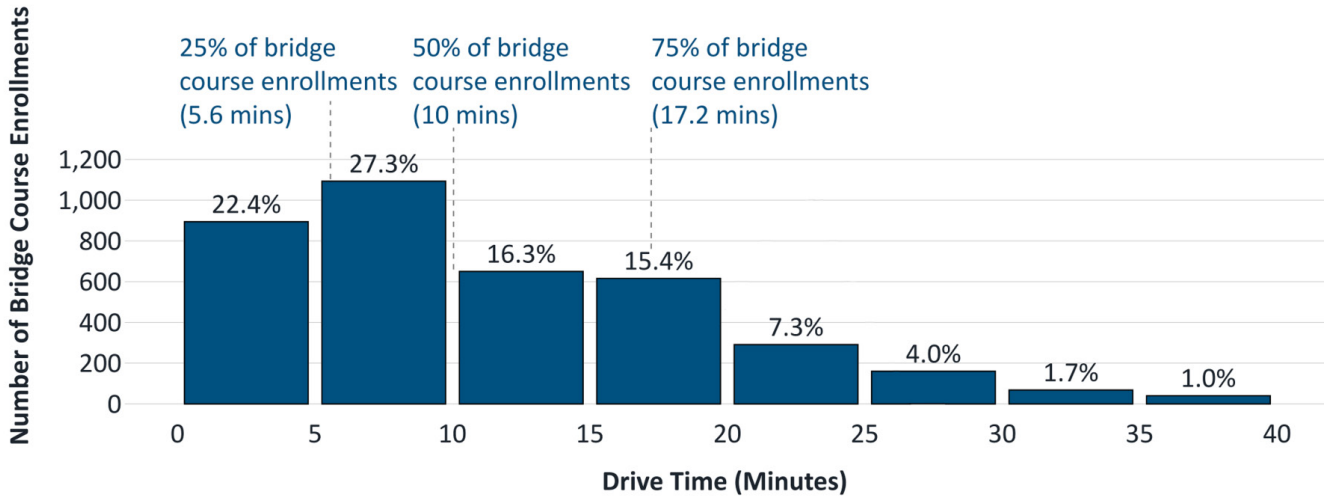
Travel Time

We also examined travel time as an important distance-based measure because the time it takes to commute can vary substantially in urban and rural areas, even if the distance is the same. We calculated the travel time for all bridge course enrollments, based on the time it took to drive from the population-weighted centroid location of the student's ZIP Code (a proxy for where they lived) to the bridge course location's address.

For 50% of bridge course enrollments, students had to travel a maximum of 10 minutes to reach their course locations.

See Appendix A for additional methodological details. **Exhibit 15** shows the distribution of bridge course enrollments based on travel time in minutes. Taller bars represent larger numbers of course enrollments within specific travel time ranges. Students had to travel a maximum of 5.6 minutes for 25% of bridge course enrollments and a maximum of 10 minutes for 50% of bridge course enrollments. Approximately 22% of bridge course enrollments involved a travel time of 0 minutes to 5 minutes, and an additional 27% involved a travel time of 5 minutes to 10 minutes. These patterns in travel time reinforce the finding that students generally enrolled in bridge courses with shorter commutes.

Exhibit 15. Number of Bridge Courses by Students' Drive Time



Note. The total number of bridge course enrollments was 3,997.
Source. Illinois Community College Board adult education administrative data, program year 2022–23.

Bridge Students' Educational Outcomes

To explore how participation in bridge courses may have shaped students' educational progress, we focused on four key student outcomes:

- **Bridge course completion.** This outcome was achieved if the student completed at least one bridge course in PY 2022–23.
- **EFL gain.** This outcome was achieved if the bridge student gained one or more EFL in PY 2022–23 at any point after their bridge course started. Students can gain an EFL by completing a post-test on a standardized assessment and achieving a score that is determined to be at least one EFL higher than their pre-test EFL.[12] Following adult education reporting norms, students who did not complete a post-test were considered not to have made an EFL gain.

[12] For example, ABE students who pre-tested at EFL 4 made an EFL gain if their post-test performance was at EFL 5 or 6.

- **Enrollment in ICAPS.** This outcome was achieved if the bridge student enrolled in an ICAPS program in Illinois in PY 2022–23 at any point after their bridge course ended.
- **Enrollment in postsecondary education.** This outcome was attained if the bridge student enrolled in a community college in Illinois in PY 2022–23. [13,14]

As previously discussed, bridge students in Illinois represented varying backgrounds and included both ABE and ESL students. The bridge courses in which they enrolled included both career awareness bridge courses and industry pathway bridge courses. We explored whether these characteristics were related to students' educational outcomes. **Exhibit 16** reports students' educational achievement rates for the four key outcomes measured. These percentages are reported separately for the total sample of 2,909 in-person bridge students and for selected student groups (e.g., race/ethnicity, gender). Overall, approximately 73% of students completed a bridge course, 31% made an EFL gain, 1% enrolled in ICAPS programs,[15] and 11% enrolled in postsecondary education.[16]

Exhibit 16. Bridge Students' Outcomes by Student Characteristics

Bridge student category	Number of students	Percentage of students who achieved education outcome			
		Bridge course completion	EFL gain	Enrollment in ICAPS	Enrollment in postsecondary education
Total students	**2,909**	**72.9%**	**31.1%**	**1.3%**	**10.5%**
Race and ethnicity					
Hispanic or Latino	1,002	73.1%	32.3%	1.8%	9.9%
White	899	78.4%	29.6%	0.9%	10.4%
Black or African American	717	65.4%	30.3%	1.3%	12.4%
All other groups	291	73.9%	33.7%	1.4%	8.0%
Gender					
Female	1,754	74.9%	31.1%	1.5%	11.1%

[13] A student was considered to have enrolled in postsecondary education if they enrolled in an Illinois community college in PY 2022–23. Data on enrollment at 4-year institutions were not available. Since the specific dates of postsecondary enrollment were not available, we assumed that these enrollments occurred after students participated in bridge courses.
[14] Fifty-six bridge students had previously enrolled in postsecondary education from July 2018 to June 2022. These students were excluded from this analysis.
[15] The rate of ICAPS enrollment rises to 5% if measured among those students who enrolled in bridge courses and ICAPS programs concurrently. These students started their ICAPS enrollment on or after the start of the bridge course but before the end of the bridge course. Compared with students who enrolled in ICAPS after the end of the bridge course, students who enrolled in bridge courses and ICAPS concurrently were less likely to complete their bridge course and enroll in postsecondary education.
[16] Bridge courses ranged in duration from a few weeks to several months, but data on course intensity (e.g., instructional hours per week) were not available. Both duration and intensity may have influenced student outcomes.

Bridge student category	Number of students	Percentage of students who achieved education outcome			
		Bridge course completion	EFL gain	Enrollment in ICAPS	Enrollment in postsecondary education
Male	1,155	70.0%	31.1%	1.0%	9.5%
Age range					
16–18 years old	447	79.6%	33.1%	1.8%	9.5%
19–24 years old	556	71.6%	25.0%	1.3%	11.6%
25–34 years old	768	65.4%	33.1%	0.8%	10.5%
35–44 years old	640	75.3%	32.8%	1.7%	10.0%
45–54 years old	357	75.1%	30.5%	1.4%	11.9%
55 years or older	141	79.6%	33.1%	1.8%	7.5%
High school completion					
Completed high school	1,215	70.9%	34.3%	1.7%	15.1%
Did not complete high school	1,694	74.3%	28.8%	1.1%	7.2%
ABE and ESL enrollment					
ABE student	1,784	72.9%	28.6%	2.0%	12.8%
ESL student	1,125	73.0%	35.0%	0.4%	6.8%
Bridge course type					
Enrolled in career awareness bridge courses only	2,611	72.5%	30.4%	1.0%	10.8%
Enrolled in industry pathway bridge courses only	276	75.7%	37.0%	2.9%	6.7%
Enrolled in both types of bridge course	22	†	†	†	†

Note. ABE refers to Adult Basic Education. EFL refers to Educational Functioning Level. ESL refers to English as a Second Language. ICAPS refers to the Integrated Career and Academic Preparation System. Percentages may not sum to 100 because of rounding. Fifty-six students who had previously enrolled in postsecondary education were excluded from the numerators and denominators of the percentages reported in the "Enrollment in Postsecondary Education" column.
† Because few bridge students (n = 22) enrolled in both career awareness bridge courses and industry pathway bridge courses, the percentages reflecting educational achievement for this group are not shown.
Source. Illinois Community College Board adult education administrative data, program year 2022–23.

There were a few notable differences in educational outcome rates between different groups. Female bridge students were more likely than male students to complete a bridge course (75% versus 70%). Students who had not completed high school were more likely to complete a bridge course than high school completers (74% versus 71%), though high school completers had a higher EFL gain rate (34% versus 29%) and postsecondary enrollment rate (15% versus 7%). ESL students were more likely to make EFL gains than ABE students (35% versus 29%), but ABE students were more likely to enroll in ICAPS programs (2.0% versus 0.4%) and postsecondary education (13% versus 7%).

With respect to race and ethnicity, there was no clear pattern indicating increased educational achievement for a specific group. For example, White students were the most likely to complete a bridge course, Hispanic or Latino students were the most likely to enroll in ICAPS programs, and Black students were the most likely to enroll in postsecondary education. The groups with the highest EFL gain rates were students of all other races (including Asian and multiracial students), followed closely by Hispanic or Latino students.

In terms of age, the youngest and oldest groups of students were the most likely to complete a bridge course, perhaps because they were less likely to have dependent children and be employed, resulting in fewer competing responsibilities. Students ages 19–24 were the least likely to make an EFL gain but had a high postsecondary enrollment rate. Students ages 25–34 were the least likely to enroll in ICAPS programs but had a high EFL gain rate. Students ages 55 or older were the least likely to enroll in postsecondary education.

Overall, 276 students enrolled in industry pathway bridge courses only and 2,611 students enrolled in career awareness bridge courses only. Students who enrolled in industry pathway bridge courses only had a slightly higher ICAPS enrollment rate (3%) than those who enrolled in career pathway bridge courses only (1%).

Bridge students varied in terms of how much they had to travel to reach their course locations. Exhibits B2 and B3 in Appendix B report on travel distance and travel time, respectively, for different groups of students. We examined whether students' travel distance or travel time appeared to be related to their educational outcomes. **Exhibit 17** reports students' educational achievement rates by travel distance and travel time.

Exhibit 17. Bridge Students' Outcomes by Travel Distance and Time to Bridge Course Locations

Bridge student category	Number of students	Percentage of students who achieved education outcomes			
		Bridge course completion	EFL gain	Enrollment in ICAPS	Enrollment in postsecondary education
Total students	**2,909**	**72.9%**	**31.1%**	**1.3%**	**10.5%**
Travel distance					
Less than 2.0 miles	627	70.5%	29.2%	0.8%	9.4%
2.0 miles to 4.9 miles	825	72.0%	33.0%	1.5%	16.2%
5.0 miles to 9.9 miles	798	71.7%	32.6%	1.9%	10.8%
10.0 miles to 19.9 miles	456	77.0%	29.8%	1.1%	7.4%
20.0 miles or more	203	79.8%	26.6%	1.0%	12.5%
Travel time					
Less than 5.0 minutes	667	71.1%	29.2%	0.6%	9.7%
5.0 minutes to 9.9 minutes	757	71.9%	31.8%	1.7%	12.3%
10.0 minutes to 19.9 minutes	923	71.4%	33.6%	1.6%	10.6%
20.0 minutes to 29.9 minutes	326	78.8%	29.4%	1.5%	6.6%
30.0 minutes or more	236	79.2%	26.7%	0.8%	11.7%

Note. EFL refers to Educational Functioning Level. ICAPS refers to the Integrated Career and Academic Preparation System. For the 716 bridge students (25%) who enrolled in two or more bridge courses in PY 2022–23, travel distance and travel time values were averaged across their multiple bridge courses. Note that the 56 students who had previously enrolled in postsecondary education before the start of their bridge course were excluded from the "Enrollment in Postsecondary Education" column (i.e., not included in numerator and denominator values when calculating these achievement rates). See Appendix A for additional methodological details. Percentages may not sum to 100 because of rounding.
Source. Illinois Community College Board adult education administrative data, program year 2022–23.

A clear pattern emerged with respect to bridge course completion. Students who lived further away from their course locations (i.e., 10 miles or more) or had longer commutes (i.e., 20 minutes or more) were more likely to complete a bridge course. It is possible that students who chose to enroll in bridge courses located further away selected those courses due to topical relevance and may therefore have been more motivated to complete their courses. The data suggest that students may have been willing to travel longer distances for Human Services bridge courses. Of the 232 course enrollments involving a travel distance of 20 miles or more, Human Services emerged as the predominant career cluster, representing 94 course enrollments (41%).

Students who lived further away from their bridge course locations and had longer commutes were more likely to complete a bridge course.

Similar patterns were not observed for the other educational achievement outcomes we examined. EFL gain rates and ICAPS enrollment rates were highest for bridge students who lived a moderate distance from their course location (i.e., 2 miles to 9.99 miles, or 5 minutes to 19.99 minutes). The groups most likely to enroll in postsecondary education were students who lived relatively close to their bridge course locations (i.e., 2 miles to 4.99 miles, or 5 minutes to 9.99 minutes). The second highest postsecondary enrollment rate was observed for students who had to travel 20 or more miles or for 30 or more minutes. These mixed results suggest there is no clear pattern between distance travelled and outcomes of EFL gain, enrollment in ICAPS, and postsecondary education.

Summary of Findings and Implications

Adult education bridge courses are designed to equip individuals with the skills they need to access better educational and employment opportunities, which can address workforce shortages in high-demand sectors. Mapping the geographic locations of bridge courses and bridge students provides valuable insights into how bridge programming is serving Illinois residents' skill-building needs. Importantly, the findings in this brief highlight descriptive patterns in the data and should not be interpreted as indicating a cause-and-effect relationship.

Bridge course offerings in Illinois were heavily concentrated in urban areas, particularly around Chicago, which accounted for nearly half of all bridge course locations. Community colleges—the largest group of adult education providers—offered courses across the state, but community- and faith-based organizations were primarily located in the Chicago MSA. While courses in Health Science, Education and Training, and Manufacturing were distributed across the state, courses in other career clusters, such as Information Technology and Business Management and Administration, were limited to urban areas. Reflecting this urban concentration of offerings, 80% of bridge students lived in urban counties, with 77% residing in the Chicago area.

Some sociodemographic differences emerged in bridge students' travel patterns. While rural students accounted for just 20% of the overall bridge student population, they accounted for 42% of those who traveled more than 20 miles to their bridge course. Over two thirds of rural students were between the ages of 16 and 24, suggesting that teenagers and young adults were among those traveling further to attend bridge courses.

Distance mattered for bridge participation, completion, and EFL gains, though not for ICAPS and postsecondary enrollment. Most students enrolled in bridge courses close to home: Sixty percent of enrollments occurred within the same or a neighboring ZIP Code, and nearly half involved travel distances under 5 miles or travel times of 10 minutes or less. However, students who traveled 10 miles or more were more likely to complete a bridge course. For instance, the completion rate was 77% among students who traveled between 10 miles and 19.9 miles, and nearly 80% among those who traveled 20 miles or more, compared with 71% among those who traveled less than 2 miles. EFL gains were most common among students with moderate travel distances (2 miles to 9.9 miles) and travel times (5 minutes to 19.9 minutes). Postsecondary enrollment was highest among those with short commutes (2 miles to 4.9 miles, or 5 minutes to 9.9 minutes), though it was also relatively high among those traveling 20 miles or more.

Taken together, these findings suggest that the relationship between proximity and certain outcomes is complex and may reflect a mix of logistical, motivational, and programmatic factors. It is also likely that proximity to ICAPS and postsecondary programs plays a critical role in entry into these programs. However, this analysis could not consider the spatial location of ICAPS and postsecondary programs due to lack of information. Findings show that the groups with the highest ICAPS enrollment rates were ABE students and those enrolled in industry pathway bridge courses. The groups with the highest postsecondary enrollment rates were students who had completed high school prior to enrolling in their bridge course, ABE students, and Black or African American students.

Future research could expand on these findings in important ways. First, the geographic locations of ICAPS programs and postsecondary institutions could be incorporated to better understand how proximity to these opportunities shapes students' next steps after bridge participation. Examining how bridge courses are geographically positioned in relation to ICAPS and postsecondary offerings could reveal critical gaps in career pathway pipelines. Second, assessing whether these training opportunities are responsive to local labor market needs, and identifying the characteristics of bridge providers that are most effectively aligned, could inform strategies to strengthen pathways to good jobs across Illinois. Finally, while this analysis focused on in-person bridge courses, future studies should examine online and hybrid bridge course offerings, including their geographic reach, student characteristics, and outcomes. Since the COVID-19 pandemic, virtual options for adult education courses have become more common, making it important to explore how these formats are being used in bridge programming and the implications this may have for participation and outcomes.

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Appendix A. Technical Details

This appendix provides additional details on the analytic decisions and research methods used to conduct analyses for this report.

Bridge Student Analytic Sample

The administrative data included 3,169 students who took bridge courses in program year (PY) 2022–23. Because this report focuses on the geographical location of bridge programs, student residence locations, and the interplay between them, we limited the analytic sample to only those students who took in-person bridge courses and had a valid ZIP Code in Illinois. After implementing these criteria, 2,909 students (91.8%) were included in the analytic sample for this study.

Of the 260 students (8.2%) who were excluded from the total student sample, 15 students (5.8%) did not have a valid Illinois ZIP Code. To determine this, we compared a unique list of ZIP Codes reported in the Illinois Community College Board (ICCB) adult education administrative data to an ArcGIS Living Atlas Zip Code shapefile (i.e., a geospatial data file that stores location and attribute information) and kept only those student records that had a ZIP Code match with the shapefile. The other 245 students (94.2%) were excluded because they only attended virtual classes. Virtual classes were identified as those where the course location in the administrative data included one of the following key words with any capitalization style: "synchronous," "online," "on-line," "on line," or "web-based." These key words signaled that bridge courses likely were not attended by students in person.

We identified unique bridge courses taken by the same student using a combination of the program ID and course title. Sometimes, course titles were spelled slightly differently across records—for example, "Early Childhood Education Intermedia (BR175 251-4)" and "Early Childhood Education Intermediate (BR175 251)"—but were considered by the American Institutes for Research to be the same course. Courses taken by the same student with the same start date, location, and program ID were determined to be duplicate records and were removed.

Bridge Course Location Addresses

To find the geographic location for each bridge course, we used a combination of the program name and building location. We used two artificial intelligence (AI) tools to assist in this process: ChatGPT and Microsoft Copilot. We provided both AI tools with the program name and building location and entered the following prompt: "I'm looking for the addresses of some buildings that offer adult education in the state of Illinois. I have data on the program and the building. If the value in the building column is missing or is the same as the value in the program column, then rely on the program column. Can you fill in the address column?"

The two AI tools provided addresses in response to this prompt. In cases where the two AI tools agreed and provided the same address (about 75% of cases), we retained the provided address. In cases where the two AI tools did not agree, we manually searched Google and Google Maps to find an exact address. When conducting manual searches, we spelled out abbreviations in the program and building information (e.g., "Building" instead of "Bldg."). In cases where the manual search yielded an organization with more than one location, we used the address of the main office or main campus. In cases where no exact match was found for the program name and/or building name, we accepted close approximations based on human judgment.

Finally, when analyzing travel distance, we observed 15 extreme outliers (less than 1% of cases) where students appeared to be travelling over 100 miles to a bridge course location. In these cases, AIR re-examined the bridge course locations generated by the two AI tools and conducted a manual search using Google and Google Maps. For all 15 cases, we updated bridge course locations based on this new search, which resulted in derived distance measures falling within a more plausible value range.

Community College Primary Campus Locations

We used data from the National Center for Education Statistics' Integrated Postsecondary Education Data System (IPEDS) to identify primary campus locations for community colleges that offered bridge courses. The IPEDS Institutional Characteristics survey component provides geographic coordinates based on each college's reported primary physical address. This single location may not reflect all satellite or off-campus locations operated by the institution.

Deriving Distance-Based Measures

We used the *sf* package in R programming software to determine spatial relationships between ZIP Codes. By analyzing the geometry of ZIP Code polygons (i.e., boundary lines), we identified whether ZIP Codes shared boundaries (i.e., were direct neighbors) using spatial functions such as *st_relate()*. We then extended this analysis to classify ZIP Codes that were one or two "steps" away by building a neighborhood network, treating direct neighbors as step 1 and neighbors of neighbors as step 2. This approach allowed us to quantify ZIP Code proximity in terms of spatial adjacency rather than geographic distance.

We used two sets of geographic coordinates in our analysis: one for bridge course locations and one for bridge students' locations. For bridge course locations, we used the *tidygeocoder* package in R to geocode the addresses and obtain precise latitude and longitude coordinates. For students' locations, we relied on population-weighted ZIP Code centroids provided by the Department of Housing and Urban Development's Geographic Information Systems Helpdesk. This dataset offers representative coordinates for each ZIP Code based on the spatial distribution of the population within each ZIP Code

(i.e., estimated "center of population"). Because we did not have students' exact residential addresses, we used the population-weighted centroid of their ZIP Code as a proxy for their location.

We used these same two sets of geographic coordinates to calculate travel distances and times using the *osrm* package in R. This package connects to the public version of the Open Source Routing Machine (OSRM), which uses OpenStreetMap data as its routing base. OSRM processes these data into a routing graph optimized for efficient pathfinding and travel time estimation. Using this package, we were able to estimate driving distances and times based on real-world road networks.

While we calculated travel distance and travel time based on driving, it is possible that some students used public transportation to reach their bridge course locations. However, using public transportation data may have introduced inconsistencies and skewed the results, as not all bridge students (particularly those in rural parts of the state) have access to readily available public transportation. To ensure comparability across all students, we chose driving as a consistent mode of travel, despite the likely variation in transportation methods used by bridge students, particularly between those living in urban and rural areas.

Urbanicity

Urban and rural classifications were determined for each county in Illinois based on U.S. Department of Agriculture rural–urban continuum codes, following data operationalization implemented by the Illinois Department of Public Health. Among the 102 counties in the state, 19 were identified as urban and the remaining 83 were identified as rural.

We mapped county boundaries using the county shapefile from the Illinois Department of Transportation using ArcGIS Pro. This allowed us to accurately visualize and analyze the geographic distribution of counties across the state. To determine whether a student was from an urban or rural county, we mapped the population-weighted centroid of each student's ZIP Code and assessed whether it fell within the spatial boundaries of a county classified as urban or rural.

Appendix B. Supplemental Analysis

Exhibit B1. Number of Providers and Locations Offering Bridge Courses by Provider Type

Course career cluster	Total locations offering bridge courses	Locations offering only career awareness courses	Locations offering only industry pathway courses	Locations offering both course types
Health Science	52	46	6	0
Education and Training	29	28	0	1
Manufacturing	29	27	2	0
Human Services	16	15	1	0
Information Technology	15	11	4	0
Business Management and Administration	9	6	3	0
Transportation, Distribution, and Logistics	8	6	2	0
Hospitality and Tourism	7	3	3	1
Architecture and Construction	2	2	0	0
Arts, Audio/Video Technology, and Communications	1	0	1	0
Law, Public Safety, and Corrections	1	0	1	0
Science, Technology, Engineering, and Math	1	1	0	0

Source. Illinois Community College Board adult education administrative data, program year 2022–23.

Exhibit B2. Bridge Students' Travel Distance by Student Characteristics

Bridge student category	Number of students	Percentage of students				
		Less than 2.0 miles	2.0–4.9 miles	5.0–9.9 miles	10.0–19.9 miles	20.0 miles or more
Total students	2,909	21.6%	28.4%	27.4%	15.7%	7.0%
Race and ethnicity						
Hispanic or Latino	1,002	19.8%	25.1%	32.2%	16.2%	6.7%
White	899	23.0%	25.9%	23.8%	17.5%	9.8%
Black or African American	717	22.3%	36.3%	23.3%	13.7%	4.5%
All other groups	291	21.3%	28.5%	33.0%	14.4%	2.7%
Gender						
Female	1,754	17.3%	30.3%	28.8%	16.3%	7.2%
Male	1,155	28.0%	25.6%	25.5%	15.0%	6.0%
Age range						
16–18 years old	447	22.4%	31.3%	24.8%	13.4%	8.1%
19–24 years old	556	18.0%	29.3%	27.0%	16.4%	9.4%
25–34 years old	768	23.4%	27.0%	27.2%	15.6%	6.8%
35–44 years old	640	23.6%	28.1%	28.6%	15.3%	4.4%
45–54 years old	357	18.5%	28.9%	30.3%	15.7%	6.7%
55 years or older	447	21.3%	24.8%	27.7%	24.1%	2.1%
High school completion						
Completed high school	1,215	21.2%	29.0%	30.9%	14.8%	4.1%

Bridge student category	Number of students	Percentage of students				
		Less than 2.0 miles	2.0–4.9 miles	5.0–9.9 miles	10.0–19.9 miles	20.0 miles or more
Did not complete high school	1,694	21.8%	28.1%	25.0%	16.5%	8.6%
ABE and ESL enrollment						
ABE student	1,784	20.9%	30.9%	25.2%	14.9%	8.1%
ESL student	1,125	22.6%	24.5%	31.1%	17.2%	4.5%
Urbanicity						
Urban student	2,320	20.2%	28.8%	31.4%	14.4%	5.2%
Rural student	589	27.0%	26.8%	11.7%	20.5%	13.9%

Note. ABE refers to Adult Basic Education. ESL refers to English as a Second Language. For the 716 bridge students (25%) who enrolled in two or more bridge courses in program year 2022–23, travel distance values were averaged across their multiple bridge courses. See Appendix A for additional methodological details. Percentages may not sum to 100 because of rounding.

Source. Illinois Community College Board adult education administrative data, program year 2022–23.

Exhibit B3. Bridge Students' Travel Time by Student Characteristics

Bridge student category	Number of students	Percentage of students				
		Less than 5.0 minutes	5.0–9.9 minutes	10.0–19.9 minutes	20.0–29.9 minutes	30.0 minutes or more
Total students	2,909	22.9%	26.0%	31.7%	11.2%	8.1%
Race and ethnicity						
Hispanic or Latino	1,002	18.4%	25.3%	35.7%	12.2%	8.4%
White	899	26.7%	21.9%	28.1%	12.0%	11.2%
Black or African American	717	25.4%	32.5%	26.6%	10.0%	5.4%
All other groups	291	21.0%	24.4%	41.6%	9.6%	3.4%
Gender						
Female	1,754	18.8%	27.3%	33.1%	12.1%	8.8%
Male	1,155	29.3%	24.0%	29.7%	10.2%	6.8%
Age range						
16–18 years old	447	23.5%	32.9%	23.5%	10.7%	9.4%
19–24 years old	556	21.4%	24.8%	30.9%	12.8%	10.1%
25–34 years old	768	24.5%	24.2%	32.4%	10.8%	8.1%
35–44 years old	640	24.4%	25.0%	33.1%	11.6%	5.9%
45–54 years old	357	19.3%	24.9%	37.5%	10.1%	8.1%
55 years or older	447	21.3%	24.8%	36.2%	12.8%	5.0%
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Completed high school	1,215	21.6%	25.9%	36.9%	10.5%	5.1%
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ABE and ESL enrollment						
ABE student	1,784	23.8%	27.6%	28.2%	10.8%	9.6%
ESL student	1,125	21.6%	23.3%	37.3%	12.2%	5.6%
Urbanicity						

Bridge student category	Number of students	Percentage of students				
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Urban student	2,320	20.0%	28.3%	35.5%	9.9%	6.3%
Rural student	589	34.3%	17.1%	17.0%	16.5%	15.1%

Note. ABE refers to Adult Basic Education. ESL refers to English as a Second Language. For the 716 bridge students (25%) who enrolled in two or more bridge courses in program year 2022–23, travel time values were averaged across their multiple bridge courses. See Appendix A for additional methodological details. Percentages may not sum to 100 because of rounding.

Source. Illinois Community College Board adult education administrative data, program year 2022–23.

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